

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Withdrawn): A double-sided ferrule manufacturing method comprising the steps of : preparing a ferrule forming an insertion opening which allows insertion of a fiber ribbon in one end surface of a ferrule; arranging fiber minute holes ahead of the insertion opening, optical fibers obtained by removing an end portion of the fiber ribbon inserted into the insertion opening being capable of being inserted into the fiber minute holes; forming the other end surface of the ferrule as a joint end surface in which the end surfaces of the optical fibers inserted into the fiber minute holes can be exposed; cutting the ferrule at some midpoint in the fiber ribbon inserting direction in the direction in which the fiber minute holes are arranged to thereby form a member equipped with the joint end surface; preparing two members each equipped with such a joint end surface; and causing the cut surfaces of the two members to butt against each other and gluing them together to thereby form a ferrule having two joint end surfaces.

Claim 2 (Withdrawn): A double-sided ferrule manufacturing method according to Claim 1, wherein a guide pin is inserted into guide pin holes of the two members communicating with each other by butting the cut surfaces against each other to effect alignment on the two members before gluing the butting cut surfaces to each other.

Claim 3 (Withdrawn): A double-sided ferrule manufacturing method according to Claim 2, wherein oil is previously applied to the outer peripheral surface of the guide pin.

Claim 4 (Withdrawn): A double-sided ferrule manufacturing method comprising the steps of: preparing an auxiliary member equipped with a guide pin insertion hole, guide grooves for guiding optical fibers, and optical fiber insertion holes into which the optical fibers can be inserted; inserting a guide pin into the guide pin insertion hole of the auxiliary member and into a guide pin insertion hole of a double-sided ferrule to connect the auxiliary member and the double-sided ferrule with each other; inserting the optical fibers into the optical fiber insertion holes from the guide grooves of the auxiliary member to cause them pass through the insertion holes; and inserting the optical fibers into optical fiber insertion holes of the double-sided ferrule.

Claim 5 (Withdrawn): A double-sided ferrule manufacturing method according to Claim 4, wherein the auxiliary member consists of a divisional ferrule obtained by dividing into two a ferrule equipped with two guide pin insertion holes, an optical fiber insertion opening which allows insertion of a fiber ribbon, a plurality of guide grooves for guiding optical fibers, and optical fiber insertion holes into which the optical fibers can be inserted, and wherein the divisional ferrule is the optical fiber insertion hole side divisional ferrule of two divisional ferrules obtained by cutting the portion between the optical fiber insertion opening and the optical fiber insertion holes of a ferrule across the guide pin insertion holes and the guide grooves.

Claim 6 (Withdrawn): A double-sided ferrule manufacturing method according to Claim 4 or 5, wherein the auxiliary member and the double-sided ferrule are connected by guide pins so as to be opposed to each other with a gap therebetween.

Claim 7 (Withdrawn): A double-sided ferrule manufacturing method according to one of Claims 4 through 6, wherein each of the guide pins is equipped with an insertion restricting portion for restricting the insertion thereof into the auxiliary member and into the double-sided ferrule.

Claim 8 (Withdrawn): An auxiliary member for use in the double-sided ferrule manufacturing method according to any one of Claims 4 through 7, the auxiliary member comprising: guide pin insertion holes, guide grooves for individually guiding optical fibers, and optical fiber insertion holes which are formed ahead of the guide grooves and into which the optical fibers can be individually inserted.

Claim 9 (Withdrawn): An auxiliary member for use in the double-sided ferrule manufacturing method according to any one of Claims 4 through 7, wherein the auxiliary member consists of an optical fiber insertion hole side divisional ferrule of two divisional ferrules obtained by cutting a ferrule equipped with guide pin insertion holes, an optical fiber insertion opening into which optical fibers can be inserted, guide grooves for guiding the optical fibers, and optical fiber insertion holes into which the optical fibers can be inserted, across the guide pin insertion holes and the guide grooves into an optical fiber insertion opening side portion and an optical fiber insertion holes side portion.

Claim 10 (Withdrawn): A double-sided ferrule end surface polishing method comprising the steps of: preparing two members in each of which one end surface is formed as a joint end surface having two guide pin holes and a plurality of fiber minute holes arranged between the guide pin holes and the other end surface is formed as a gluing end surface, the guide pin holes extending from one end surface to the other end surface; causing

the gluing end surface of these two members to butt against each other and gluing them together such that their respective guide pin holes communicate with each other; inserting optical fibers from the fiber minute holes of one member to the fiber minute holes of the other member and fixing the optical fibers to the two members to obtain a double-sided ferrule; and polishing an end surface of the double-side ferrule, with reinforcing members being inserted into the guide pin holes of the two members communicating with each other.

Claim 11 (Withdrawn): A double-sided ferrule end surface polishing method comprising the steps of: preparing two members in each of which one end surface is formed as a joint end surface having two guide pin holes and a plurality of fiber minute holes arranged between the guide pin holes and the other end surface is formed as a gluing end surface, the guide pin holes extending from one end surface to the other end surface; causing the gluing end surface of these two members to butt against each other and gluing them together such that their respective guide pin holes communicate with each other; inserting optical fibers from the fiber minute holes of one member to the fiber minute holes of the other member and fixing the optical fibers to the two members to obtain a double-aided ferrule; and polishing an end surface of the double-side ferrule, with the two members being fixed by a jig astride the end surfaces of the two members glued to each other.

Claim 12 (Withdrawn): An optical connector assembling method in which optical fibers inserted into insertion holes are fixed to a ferrule by an adhesive, wherein after injecting the adhesive into an inlet of optical fiber insertion holes and into an injection window formed in the ferrule so as to communicate with the optical fiber insertion holes, the optical fibers are inserted into the optical fiber insertion holes from the inlet and the adhesive is forced into the optical fiber insertion holes.

Claim 13 (Withdrawn): An optical connector assembling method in which optical fibers inserted into insertion holes are fixed to a ferrule by an adhesive, wherein after inserting the optical fibers into optical fiber insertion holes, the adhesive is injected into an injection window formed in the ferrule so as to communicate with the optical fiber insertion holes, and the adhesive is applied to an inlet side and an outlet side of the optical fiber insertion holes, the fibers being reciprocated (stroked) in the inserting direction to fill the optical fiber holes with the adhesive.

Claim 14 (Withdrawn): An optical connector assembling method in which optical fibers inserted into insertion holes are fixed to a ferrule by an adhesive, wherein the optical fibers are inserted into optical fiber insertion holes, which are filled with the adhesive, and, before the adhesive cures, an optical fiber coating portion of a fiber ribbon on the outer side of the ferrule is cut off to release the optical fibers from the restraint by the coating portion before allowing the adhesive to cure.

Claim 15 (Withdrawn): An optical connector assembling method in which optical fibers inserted into insertion holes are fixed to a ferrule by an adhesive, wherein after allowing the adhesive to undergo thermosetting, a temperature not lower than glass transition temperature is applied to the adhesive to eliminate the distortion of the adhesive generated at the time of thermosetting, then the adhesive is restored from the glass transition temperature to room temperature over a period of time long enough not to generate distortion in the adhesive.

Claim 16 (Withdrawn): An optical connector in which optical fibers inserted into insertion holes are fixed to a ferrule by an adhesive for assembly, wherein after injecting the

adhesive into an inlet of optical fiber insertion holes and into an injection window formed in the ferrule so as to communicate with the optical fiber insertion holes, the bare fibers are inserted into the optical fiber insertion holes from the inlet and the adhesive is forced into the optical fiber insertion holes for assembly.

Claim 17 (Currently Amended): A guide pin ~~in the form~~ comprising:  
of a bar ~~adapted~~ configured to be inserted into first and second guide pin holes of a pair of respective first and second optical connectors, the optical connectors having respective first and second joint end surface sides connected through butting against each other; and , wherein  
a longitudinal part of the guide pin is formed as a fixing portion that can configured to be forced into the first guide pin hole of ~~[[one]]~~ the first optical connector ~~for fixation~~, ~~[[the]]~~  
wherein an outer diameter of the fixing portion ~~[[being]]~~ is larger than an outer diameter that of the of a remaining portion of the guide pin.

Claim 18 (Currently Amended): A guide pin ~~in the form~~ comprising:  
of a bar ~~adapted~~ configured to be inserted into first and second guide pin holes of a pair of respective first and second optical connectors, the optical connectors having respective first and second joint end surface sides connected through butting against each other; and , wherein  
a longitudinal part of the guide pin is formed as a fixing portion that can configured to be forced into the first guide pin hole of ~~[[one]]~~ the first optical connector ~~for fixation~~,  
wherein the fixing portion ~~having a large number~~ has a plurality of engagement protrusions ~~that can be engaged with the~~ configured to engage an inner peripheral surface of the first guide pin hole.

Claim 19 (Currently Amended): A guide pin according to Claim 17, wherein;  
~~assuming that the~~ a maximum outer diameter of the fixing portion is  $R1\ (\mu\text{m})$ , ~~an~~ and that the  
inner diameter of the first guide pin ~~[[holes]] hole of the optical connector~~ is  $R2\ (\mu\text{m})$ , the  
~~following relationship is satisfied:~~ and  $R2 \leq R1 \leq R2 + 2\ \mu\text{m}$ .

Claim 20 (Currently Amended): A guide pin according to Claim 18, wherein;  
~~assuming that the~~ a maximum outer diameter of the fixing portion is  $R1\ (\mu\text{m})$ , ~~and that the~~ an  
inner diameter of the first guide pin ~~[[holes]] hole of the optical connector~~ is  $R2\ (\mu\text{m})$ , the  
~~following relationship is satisfied:~~ and  $R2 \leq R1 \leq R2 + 10\ \mu\text{m}$ .

Claim 21 (Currently Amended): An optical connector connecting method comprising  
the steps of:

inserting the guide pin ~~according to any one of Claims 17-20~~ of Claim 17 into the  
first guide pin hole ~~of one optical connector~~, from ~~[[the]]~~ a first end surface side ~~on the~~  
opposite side of the first joint end surface side, ~~of the optical connector so as to cause such~~  
that a longitudinal part of the guide pin ~~[[to]]~~ outwardly ~~protrude~~ protrudes from the first joint  
end surface side; and

inserting the protruding longitudinal part of the guide pin into the second guide pin  
hole ~~of the other optical connector from the joint end surface side of the optical connector to~~  
thereby connect the first and second joint end ~~surfaces of the two optical connectors~~ surface  
sides butting against each other.

Claim 22 (New): An optical connector connecting method comprising:

inserting the guide pin of Claim 18 into the first guide pin hole, from a first end surface side opposite of the first joint end surface side, such that a longitudinal part of the guide pin outwardly protrudes from the first joint end surface side; and

inserting the protruding longitudinal part of the guide pin into the second guide pin hole to thereby connect the first and second joint end surface sides butting against each other.

Claim 23 (New): An optical connector connecting method comprising:

inserting the guide pin of Claim 19 into the first guide pin hole, from a first end surface side opposite of the first joint end surface side, such that a longitudinal part of the guide pin outwardly protrudes from the first joint end surface side; and

inserting the protruding longitudinal part of the guide pin into the second guide pin hole to thereby connect the first and second joint end surface sides butting against each other.

Claim 24 (New): An optical connector connecting method comprising:

inserting the guide pin of Claim 20 into the first guide pin hole, from a first end surface side opposite of the first joint end surface side, such that a longitudinal part of the guide pin outwardly protrudes from the first joint end surface side; and

inserting the protruding longitudinal part of the guide pin into the second guide pin hole to thereby connect the first and second joint end surface sides butting against each other.

Claim 25 (New): A guide pin according to Claim 17, wherein:

the guide pin is inserted into the first guide pin hole, from a first end surface side opposite of the first joint end surface side, such that a longitudinal part of the guide pin outwardly protrudes from the first joint end surface side; and



the protruding longitudinal part of the guide pin is inserted into the second guide pin hole to thereby connect the first and second joint end surface sides butting against each other.

Claim 26 (New): A guide pin according to Claim 18, wherein:

the guide pin is inserted into the first guide pin hole, from a first end surface side opposite of the first joint end surface side, such that a longitudinal part of the guide pin outwardly protrudes from the first joint end surface side; and

the protruding longitudinal part of the guide pin is inserted into the second guide pin hole to thereby connect the first and second joint end surface sides butting against each other.

Claim 27 (New): A guide pin according to Claim 19, wherein:

the guide pin is inserted into the first guide pin hole, from a first end surface side opposite of the first joint end surface side, such that a longitudinal part of the guide pin outwardly protrudes from the first joint end surface side; and

the protruding longitudinal part of the guide pin is inserted into the second guide pin hole to thereby connect the first and second joint end surface sides butting against each other.

Claim 28 (New): A guide pin according to Claim 20, wherein:

the guide pin is inserted into the first guide pin hole, from a first end surface side opposite of the first joint end surface side, such that a longitudinal part of the guide pin outwardly protrudes from the first joint end surface side; and

the protruding longitudinal part of the guide pin is inserted into the second guide pin hole to thereby connect the first and second joint end surface sides butting against each other.